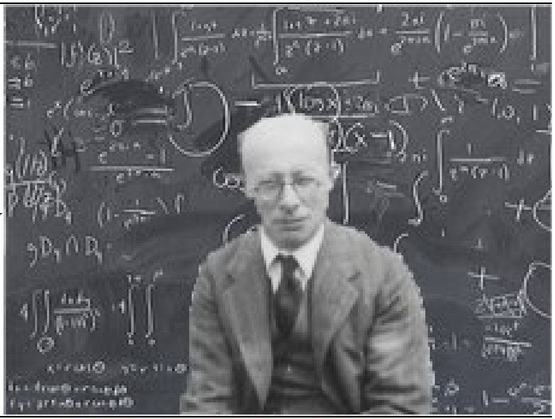
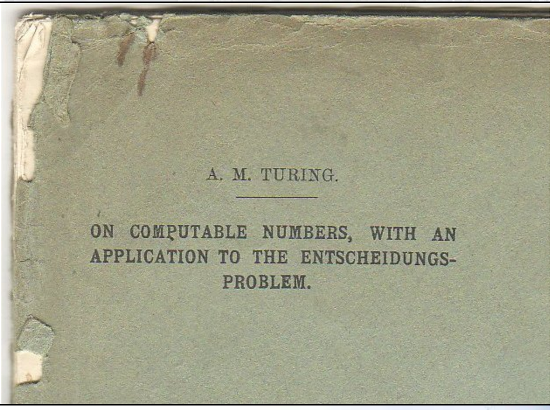

Alan Turing remembered

Talk to U3A on 28 November 2012
WMN

The family connection began in 1935: Alan, aged 23, was sitting in on one of Max Newman's lectures. Max, having discussed Gödel's work, suggested to the class that certain mathematical problems could perhaps be solved with the aid of "a mechanical process." Alan took this idea away with him.



A few months later Alan presented Max with a draft of his paper, "On Computable Numbers, …" Max was astounded by it, and acted at once to get it published and to arrange for Alan to visit Princeton University, where he subsequently gained his PhD in 1938.



A. M. TURING.

ON COMPUTABLE NUMBERS, WITH AN APPLICATION TO THE ENTSCHEIDUNGSPROBLEM.

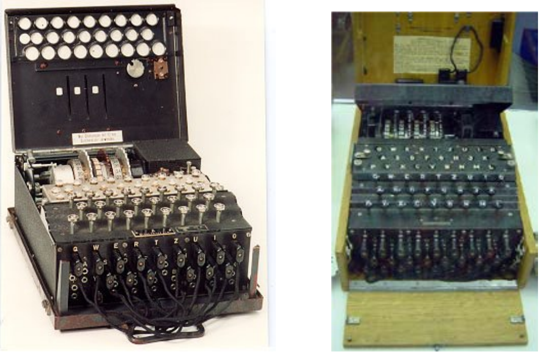
Right: an offprint of "On Computable Numbers" given to Max by Alan

---

Max and Alan were both at Bletchley Park (right) during WW2. In September 1938 Alan started working there part-time.

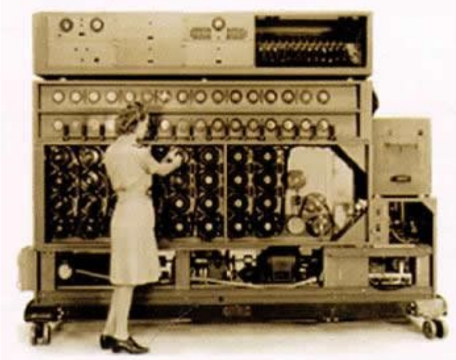
Max joined BP in 1942 and set up a group, called the 'Newmanry,' to decrypt enemy messages sent via Lorenz machines. He commuted weekly from the family home in Comberton (near Cambridge) to Bletchley where he stayed at the Duncombe Arms hotel.

Alan began full-time work at BP in September 1939, the day after war was declared. He focused on decrypting messages sent via Enigma machines, which were being used by German army units. Later he worked on a more advanced system, the Naval Enigma, used by German U-boats in the Atlantic.



Left, the original German Enigma machine; right, the more complex Naval Enigma.

Alan and his team recognized the need for code-breaking machines. They specified the design of the 'Bombe,' an electro-mechanical machine; it searched for correct settings that could be used to decrypt intercepted messages. The first machine was installed at BP in March 1940. By 1945, two hundred bombes were in operation at BP.



Turing's Bombe

Meanwhile Max, still teaching at Cambridge, had contacted his friend Patrick Blackett to help him find war-related work. Patrick put him in touch with BP. In 1942 Max joined Col. Ralph Tester's group (the 'Testery') which was tackling a new German encryption method that employed a more powerful Lorenz encoding machine. But the Testery's hand methods were too slow to cope with the volume of Lorenz messages.

The German Lorenz machine

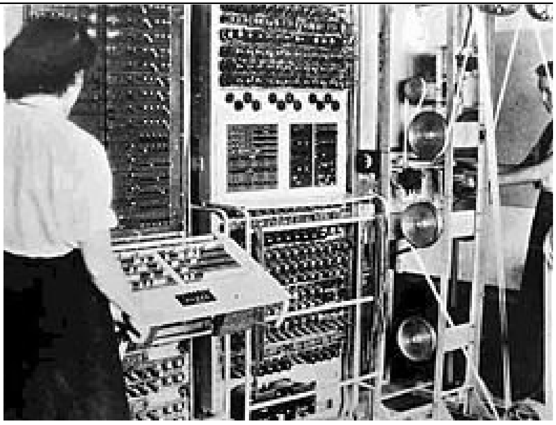
Max argued strongly for constructing an electronic machine to decrypt the Lorenz traffic. He persuaded the Post Office Research Centre in Dollis Hill to develop a machine ('Tunny') which they delivered to BP in 1943; it was named 'Robinson' after the outlandish machines drawn by the artist W. Heath Robinson. But it relied on electrical relay switches and consequently was frustratingly slow.

Right: a replica of the Robinson machine at BP

Working in the same department at Dollis Hill was a brilliant engineer, Thomas ('Tommy') Flowers. He was skeptical about Robinson's ability to handle Tunny traffic, and proposed to Max that a faster machine be built, relying on thermionic valves. This approach had already been rejected by the Robinson team on the grounds that valves were prone to failure. Flowers knew that this could be overcome by leaving the valves switched on all the time: it was switching them on and off that led to failure. The first Colossus (paid for out of Flowers's pocket) was delivered to BP in December 1943, and was immediately put to work decrypting intercepted German messages.

Right: Tommy Flowers

In June 1944, with the Allied fleet ready to sail for Normandy, a message from Hitler to his commanders in France was intercepted and decrypted by Colossus. It ordered forces to be ready for an Allied invasion across from Dover to Calais, confirming that Hitler had been taken in by the Allies' massing of ships on the Dover coast. The decrypt was handed to General Eisenhower during a meeting with his senior staff, to whom he turned and said, "Gentlemen, we sail tomorrow." The Normandy invasion met relatively light resistance, and by May 1945 Germany had surrendered.



Colossus in use in the Newmanry

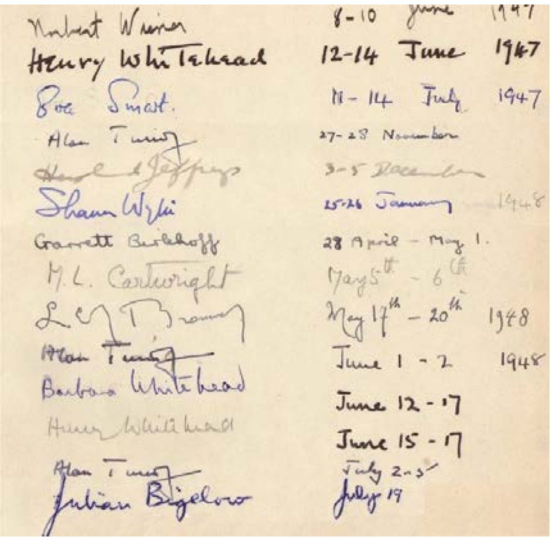
The War was over, and Max's goal was now to lead computer research, building on what he had learned and whom he had met at BP. He was offered the position of head of Manchester University's Mathematics Department, and accepted. He and the family departed for Manchester. Arriving there, Max's wife Lyn was shocked by the city's soot-coated buildings.

Post-war Manchester .

Our family moved into a house in Bowdon, a suburb south of the city. Lyn disliked the house from the start, and agreed to the purchase on condition that the Comberton house not be sold.

The Newmans' house at 7 Grange Road, Bowdon, Cheshire.

Meanwhile Alan had taken a job at the National Physical Laboratory (NPL) near London, designing their ACE computer. He visited the Newmans in Bowdon several times in 1947 and 1948.



Norbert Wiener	8-10 June	1947
Henry Whitehead	12-14 June	1947
Rose Smart.	11-14 July	1947
Alan Turing	27-28 November	
Harold Jeffreys	3-5 December	
Shaun Wylie	25-26 January	1948
Garrett Birkhoff	28 April – May 1.	
M.L. Cartwright	May 5th – 6th	
L.E.J. Brouwer	May 17th – 20th	1948
Alan Turing	June 1 - 2	1948
Barbara Whitehead	June 12 - 17	
Henry Whitehead	June 15 - 17	
Alan Turing	July 2-5	
Julian Bigelow	July 19	

A page from the Newmans' visitors book, showing three short visits by Alan.

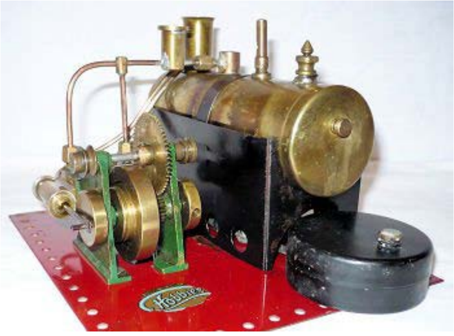
In 1948 Alan accepted Max's offer of a readership in his department in Manchester. He started work later that year, buying a house, 'Hollymeade,' in Wilmslow.

Alan's house Hollymeade, Wilmslow, Cheshire.

Alan visited us frequently in Bowdon, usually by bicycle. On one occasion he set out early one morning to run the eight miles from Wilmslow, deciding on the way to invite them to supper. I heard a noise from my bedroom next to the front door. I opened the door to find Alan who, to avoid waking the family, had scratched his invitation on a leaf with a twig and was putting it through our letter box.

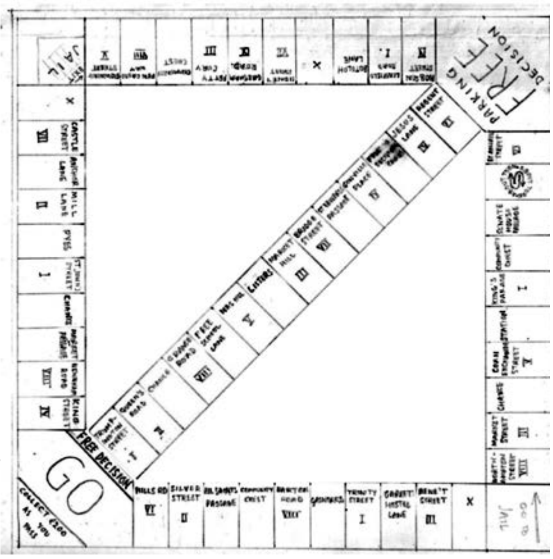
We always looked forward to Alan's visits. On birthdays and at Christmas he brought me and my brother Edward wonderful presents. For me he became the 'uncle' I'd never had (Lyn's two surviving brothers had emigrated in the 1930s to Kenya and to Peru).

Alan's generosity compensated for the frugal life that our family, with two houses to maintain, had to lead. We all felt the pinch, and I was particularly disappointed that we couldn't afford a Monopoly set.



An Xmas present from Alan – a steam engine

The family spent summers at the Comberton house, and one summer I decided to make my own Monopoly set. I drew the 'board' on a sheet of paper (see right), and named the properties after Cambridge streets and buildings. I included a special feature: an extra diagonal row of properties. This provided players with a choice of routes, by which they could sometimes avoid properties that might charge them massive rents.



My home-made Monopoly set

One day there was a phone call from Alan: did we have a Monopoly set? He would like to challenge me and Edward to a game. His offer was immediately accepted, and a date was set.

On the day, Alan may have been thrown off his stride by the diagonal, or perhaps was just unlucky – he lost hands down.

In 1952 we moved back to Cross Farm. Max now spent academic terms in Manchester, and joined us during holidays. Alan was greatly missed, especially by Lyn, who had grown very fond of him. In a letter to a friend she recalls part of a conversation:

Alan: “I just can’t believe it’s as nice to go to bed with a girl as with a boy,”

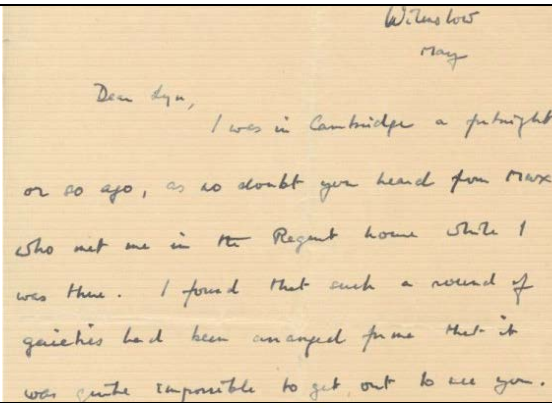
Lyn: “I entirely agree with you – I also much prefer boys.”

Cross Farm, Comberton (right)
with its Dove House (left)

Alan and Lyn corresponded regularly. Here he apologises to Lyn:

“I was in Cambridge… I found that such a round of gaieties had been arranged for me that it was quite impossible to get out to see you.”

Sadly, few of his other letters to Lyn have survived.



Wilmslow
May

Dear Lyn,

I was in Cambridge a fortnight or so ago, as no doubt you heard from Max who met me in the Regent house while I was there. I found that such a round of gaieties had been arranged for me that it was quite impossible to get out to see you.

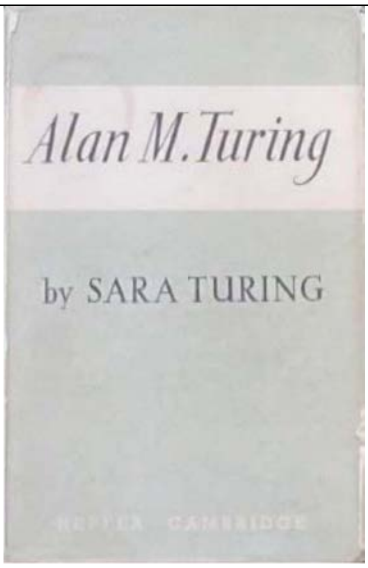
One June day in 1954 Max called Lyn from Manchester. I was in the room with her. I could tell from the tone of her voice that the news was devastating. She was in floods of tears.

When the call ended she turned to me: “Alan has killed himself.” Later she tried to help me make sense of this catastrophe.

In a letter written at that time to a close friend, Lyn described “the most shattering thing that has ever happened to me, the news that Alan Turing had taken his own life… We saw a great deal of him and were all devoted to him, for his fascinating mind – he was not only a genius but a rare kind of genius – and for his very simple, humble, gentle personality. He had been with us here for five days in April and wrote to me how very happy he had been. I never thought he would do this – no one expected it and he left no explanation at all, everything lying about in his house as though it had been a sudden casual impulse to take the poison. Awful. He was only 41, and in the middle of a very new and wonderful discovery, linking biology & mathematics.”

Another person who recognized Alan's genius was his mother Sara. After his death she bravely set about writing a biography, and accepted Lyn's offer of help. Lyn described it to a friend as,

"More an album of memories than a real book. She is without any gifts as a writer – in fact she writes quite abominably when left to her own devices. But it is an extraordinary achievement of maternal devotion from an old and delicate woman. She has revised and revised, and at last it is really quite presentable. I have been over it many times with every colour of pencil (and could still wish to do more) and have written a foreword myself about Alan… He may very easily have been the greatest English genius of our time."



The reappearance of our monopoly 'board' and the subsequent launch of Turing Monopoly has been a highlight of Alan's centenary year. The 'board' had accompanied my family during our moves from place to place, but it inevitably fell out of use as Edward and I approached adulthood, and its eventual disappearance went unnoticed. Fortunately Cross Farm, following the deaths of Lyn and then Max, was sold to a family who have cherished the house and its contents. I took my son and daughter-in-law to Comberton in 2011, and we met up with the owners and saw around the property. As they were leaving, I was handed a folder containing some papers that the owners had found. When I opened it, the first thing I saw was the monopoly board. My immediate reaction was, "This must go to Bletchley Park." Recently it has prompted the launch of Turing Monopoly, which in turn is helping to make Alan and his work more widely appreciated.